

Appl. No. : 09/851,261
Filed : May 8, 2001

REMARKS

Claim 1 has been amended to clarify the invention. Claims 13 and 14 have been added. Support for the new claims can be found in Fig. 2, for example. Accordingly, Claim 1-14 are pending in this application. The amendments do not constitute the addition of new matter to the application. Applicant respectfully requests entry of the amendments and reconsideration of the application in view of the amendments.

Rejection of Claims 1-3, 7, 9, 10 and 12 under 35 U.S.C. § 103

Claims 1-3, 7, 9, 10 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwai (US 5,533,146) and further in view of JP 2000-042769. Applicant respectfully traverses this rejection.

One of significant features of the claimed invention is to employ a plurality of semiconductor lasers to oscillate a plurality of linear laser beams configured to direct the plurality of the linear laser beams at a welding seam or at a region already welded for measuring a welding state during or after a welding process.

By employing the plurality of linear laser beams, the shapes, the inclinations, the heights and the positions of the parts to be welded and the position of the seam line can be determined by the distance between the two linear laser beams, the relative and the absolute positions of the two linear laser beams, and the line width and shape of each linear laser beam (see page 5, lines 19-24 of the specification). This advantage can be achieved by at least two linear laser beams as recited in Claims 1, 3, 7 or 10.

In contrast, Iwai employs a single semiconductor laser 5 for emitting a laser beam (see Fig. 1 and column 2, lines 43-45 of Iwai). Iwai does not teach or even suggest the claimed structure (process) nor the above advantage obtained thereby.

JP 2000-042769 discloses a method of using a CCD camera with a band pass filter and a condenser. However, the above significant feature is not taught or even suggested by JP 2000-042769. Thus, a combination of Iwai and JP 2000-042769 could not lead to the claimed invention. In view of the foregoing, Claims 1, 3, 7 and 10 and the claims dependent thereon could not be obvious over the references. It is respectfully requested that the rejection be withdrawn.

Rejection of Claims 4-6, 8 and 11 under 35 U.S.C. § 103

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Claims 4-6, 8 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwai in view of JP 2000-042769 and further in view of Anderson et al. (US 5,938,446). Applicant respectfully traverses this rejection. Claims 4-6 are dependent ultimately on independent Claim 3. Claim 8 is dependent on independent Claim 7. Claim 11 is dependent on independent Claim 10. The claims could not be obvious over the references as explained below.

Anderson et al. teaches CAD for read-off of data which is input to a CAD program. However, the other distinct features of Claims 3, 7 or 10 are not taught or suggested by Anderson et al. Thus, a combination of Iwai, JP 2000-042769 and Anderson et al. still could not lead to the claimed invention. Therefore, Claims 4-6, 8 and 11, dependent ultimately on either one of Claims 3, 7 or 10, could not be obvious over the references. It is respectfully requested that the rejection be withdrawn.

New Claims 13 and 14

Claim 13 has been added to recite that each of the plurality of the semiconductor lasers is configured to direct its linear laser beam at the welding seam or the region already welded so as to be orthogonal to the welding seam or the region. Claim 14 has been added to recite irradiating each of the plurality of the linear laser beams at a welding seam of the parts so as to be orthogonal to the welding seam. Such a configuration or process is not disclosed in the references. Accordingly, Claims 13 and 14 are also patentable for this additional reason as well.

CONCLUSION

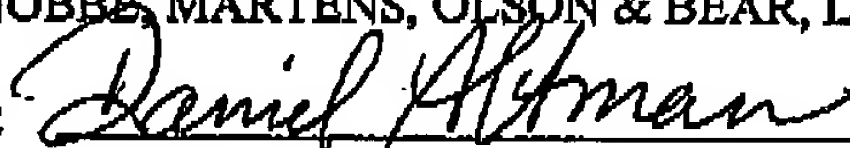
In light of the Applicant's foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below. Please charge any fees to Deposit Account No. 11-1410.

Respectfully submitted,

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